



WATERBORNE DISEASE OUTBREAKS

1. **Agent:** A variety of agents can cause symptomatic waterborne infection, including bacteria, viruses and parasites.

A waterborne outbreak is a cluster of two or more infections caused by the same agent(s) and linked in time and a common water exposure or consumption.

A waterborne outbreak may involve:

- a) **Recreational water**
 - treated water includes swimming pools, spa/whirlpools, hot tubs
 - untreated water which includes freshwater lakes, rivers, beaches and hot springs
- b) Water intended for drinking.
- c) Water not intended for drinking or water of unknown intent which includes cooling towers, air conditioning systems, misters, decorative water fountains and reclaimed water.

2. **Identification:**

- a. **Symptoms:** Vary by etiologic agent. May involve an acute onset of gastrointestinal, pulmonary, respiratory or febrile illness depending on underlying infectious etiology.
- b. **Differential Diagnosis:** Agents that cause waterborne illnesses outbreaks include but are not limited to *Cryptosporidium*, *Giardia*, *Legionella spp.*, *Norovirus*, *Shigella*, swimmer's itch, vibrios, and viral hepatitis agents (A, E).
- c. **Diagnosis:** Based on the clinical history of patients and laboratory results from patients and/or suspected waterborne sources.
- d. Many etiologic agents of disease can potentially be transmitted by water. For disease-specific

information, refer to the individual disease sections.

REPORTING PROCEDURES

- 1. Outbreaks are reportable under *California Code of Regulations*, Section 2502
- 2. Immediate telephone report of outbreak or suspected outbreak is required to:
 - a. Morbidity Unit during working hours; or
 - b. ACDC, Director of Community Health Services or Director of Environmental Health.
 - c. After working hours contact via the County Operator
- 3. Morbidity Unit assigns an outbreak number.
- 4. **Report Forms:** Depends on route of transmission as determined by investigation

Use the following forms to report waterborne outbreaks:

General or non-health care facilities:
OUTBREAK/UNUSUAL DISEASE REPORT (CDPH 8554)

For acute health care facilities:
CD OUTBREAK INVESTIGATION ACUTE HEALTH CARE FACILITY (HOSPITAL)

For sub-acute care facilities:
CD OUTBREAK INVESTIGATION SUB-ACUTE HEALTH CARE FACILITY (H-1164-SubAcute)

Use the following forms to report waterborne outbreaks to the State based on the type of water associated with the outbreak being reported (See form instructions):

- Treated Recreational Water (CDC 52.12)**
- Untreated Recreational Water (CDC 52.12)**
- Water Intended for Drinking (CDC 52.12)**
- Water Not Intended for Drinking or Water of Unknown Intent (CDC 52.12)**



If the etiologic agent of infection is reportable as an individual case, confirmed case should be entered into vCMR and **separate epidemiologic forms must be filled for each case**, in addition to the outbreak summary report.

5. Epidemiologic Data for Outbreaks:

- a. Establish a case definition based on the case's symptoms, include laboratory data if appropriate.
- b. Confirm etiology of outbreak using laboratory data from clinically ill individuals.
- c. Create line list of ill individuals to include:
 - i. Name of case
 - ii. Date of onset
 - iii. Symptoms
 - iv. Age
 - v. Hospitalization status/Name of Hospital/Date of admission/Admission diagnosis
 - vi. Results of laboratory tests
 - vii. Travel history, if relevant
 - viii. Medical treatment
 - ix. Source/location of water exposure
 - x. Epi links to other cases
- d. Create an epi-curve, by date of onset for all cases during the outbreak. Include cases meeting case definition and probable cases.
- e. Maintain surveillance for new cases until the baseline rate is down to "normal" or no new cases for one week.
- f. Look for suspected source of contaminated water and all possible water exposures to include:
 - inhalation, aspiration, contaminated produce and oral intake during incubation period.
- g. Conduct an epidemiologic study to detect the course of the outbreak and to determine if the illness originated from a single source or is ongoing.
- h. In collaboration with the Public Health Laboratory, obtain appropriate environmental testing of water and other items exposed in the environment to contaminated water (i.e., shower head,

facets filters, exhaust hoods, HVAC systems) from various sources as directed by Environmental Health Program and ACDC.

i. Follow-up on all water testing investigation results.

j. For suspected source, note date of specimen consumption and potential for cross contamination.

k. **Secondary Transmission:** obtain information regarding illness in the non-water consuming contacts to ill individuals.

CONTROL OF CASE, CONTACTS & CARRIERS

When no specific agent is known or suspected to be involved, investigate within one day of report or within three days if episode is reported late.

Follow-up as required by specific waterborne infectious agent with appropriate isolation, restriction from work and other activities, vaccination or use of post exposure prophylaxis if warranted.

1. Chief, Environmental Health (EH)

- a. Investigates and clarifies the original account of episode in collaboration with ACDC.
- b. Collaborates with ACDC in determining the course of field investigation to be made, including source of water, methods of water handling, preparation, and storage.
- c. Collects relevant water specimens. Determines the relevance of water specimens under the direction of Chief, ACDC.
- d. Maintains written reports of Environmental Health Specialists investigations.
- e. Chief of EH, in consultation with ACDC, will have authority to close recreation facility and/or other source facilities for waterborne disease outbreak if appropriate.

2. Chief, Acute Communicable Disease Control

- a. Is the lead authority and responsible to investigate and control a waterborne illness or known hazardous condition caused by biological agent
- b. Provides the lead in the investigation and control



of large outbreaks, multi-area episodes and episodes occurring outside working hours.

- c. Notifies involved district and Environmental Health program, Community Health Services Director, Area Health Officer, and Medical Director of pertinent epidemiologic findings.
- d. Chief of ACDC will have authority to close recreation or health facility if appropriate.

For disease-specific information, refer to the individual disease sections.

Submit clinical specimens as requested by Chief, ACDC. ACDC will consult with PHL regarding proper collection and handling, storage shipping/transportation of any additional clinical or environmental specimens.

3. Department Water and Power or Private Water Company:

Providing source of water should be notified of outbreak or case cluster investigation. This entity will also advise in water treatment and remediation of water source.

PREVENTION-EDUCATION

Implement hygienic measures applicable to diseases transmitted via fecal-oral mouth, or respiratory transmission of infected water.

1. Obtain water from safe sources.
2. Proper hand hygiene before meals and after using the restroom.
3. Individuals who come in contact with diapered/incontinent children and adults should ensure they are properly washing their hands.
4. Persons with diarrhea should not go swimming in order to prevent transmission to others.
5. Persons should avoid drinking untreated water that may be contaminated.
6. Avoid fecal exposure during sexual activity.
7. Proper water treatment of source water.
8. Proper Maintenance of recreational water facilities.
9. Proper maintenance of water exposures in medical facilities and treatment and testing.
10. Proper use of recycled and reclaimed water.

For other diseases, refer to the individual disease section.

DIAGNOSTIC PROCEDURES